QM Integration Module V. 1.7 Technical Manual

Introduction

The QM Integration Module (often called the QAQ routines) contains utilities that are common to some or all of the QM software packages. Utilities that you may recognize are as follows.

- The date selector is found within many of the reports options. It lets the user choose the date range that is needed for the report.

- The group selector lets the user select more than one item to print or view at a time. This reduces the number of key strokes needed to produce a specific outcome.

- The Ad Hoc Report Generator uses basic VA FileMan sort and print modifiers and adds the capability of building macros (often termed templates) for those reports that are routinely required.

- The audit file builds an audit trail for each record in the QM packages. You can see the contents of the audit file in the Occurrence Screen software by using the Audit File Inquiry option. In other software, the audit trail is accessible to the IRM staff through VA FileMan.

The QM Integration Module links the QM software through a QM Manager menu.

Implementation and Maintenance

At implementation, the Combined Site Parameters Edit option in the QM Manager Menu is used to set up site-specific data for the various QM packages installed at your site. Instructions concerning the entry of this data are contained in the Installation Guides and the User Manuals for each package.

Routines

Routine List
The following are the steps you may take to obtain a listing of the routines contained in the QM Integration Module package.

1. Programmer Options Menu
2. Routine Tools Menu
3. First Line Routine Print Option
4. Routine Selector: QAQ*

Callable Routines/Supported Entry Points
This section will discuss and document the callable entry points into the QM Integration Module routines.

1. Confidentiality and Privacy Statements

EN6^QAQAUTL
This entry point prints a one line Title 38 U.S.C. 5705 confidentiality statement. There are no required, optional, or returned variables.

EN7^QAQAUTL
This entry point prints a one line Title 38 U.S.C. 3301 privacy statement. There are no required, optional, or returned variables.

2. Application Group Edit

^QAQAPGRP
This entry point is used to load/unload the file application group multiple with a user-selected package namespace. An example of this edit is shown below.

```
D ^QAQAPGRP

Select PACKAGE NAME: QAQ   QUALITY ASSURANCE INTEGRATION        QAQ
Checking the QAQ application group.................
```

First the user is prompted for a package name. The application group multiple in the file of files (File #1) is then scanned for files that are members of the selected application group. Next the user is asked to select/deselect the files to be added/removed from the selected application group. Multiple files may be selected/deselected. Files may be deselected by entering a minus sign (-) and the file name or number.

```
Select FILE: 741   QA OCCURRENCE SCREEN
Select FILE:
```

When all the desired files have been selected press <RET> to continue. Answer YES to load/unload the files from the selected application group. Answer NO or up-arrow (^) to exit.

```
Load/Unload application groups? NO// Y  (YES)

Loading:
   741          QA OCCURRENCE SCREEN
.
   *** Finished ***
```

EN1^QAQAPGRP
This entry point may be used if the programmer wishes to preselect the package namespace to use as the application group name. There are no returned variables.

Required Variables

QAQANMSP
The package namespace to be used as the application group name.

Optional Variables

QAQAPROG
A routine entry point that will be executed (DO @QAQAPROG) to set up a default list of preselected files. The default list should be in the following form:
```
^UTILITY($J,"QAQA",File#) = File Name
```


3. Execute Cross-Reference Logic

ENSET^QAQAXREF
This entry point is used to execute the set logic for all cross-references on a field. There are no returned variables.

QAQADICT
The dictionary or sub-dictionary number of where the field resides.

QAQAFLD
The field number.

X
The value contained in the field to be cross-referenced.

DA,D0,etc.
Any other variables required by the set logic of the cross-reference.

ENKILL^QAQAXREF
This entry point is used to execute the kill logic for all cross-references on a field. There are no returned variables.

Required Variables

QAQADICT
The dictionary or sub-dictionary number of where the field resides.

QAQAFLD
The field number.

X
The value contained in the field to be cross-referenced.

DA,D0,etc.
Any other variables required by the kill logic of the cross-reference.

4. Date Range Selection

^QAQDATE
This entry point is used to prompt the user for a range of dates. The selections are Monthly, Quarterly, Semi-Annually, Yearly, Fiscal Yearly, and User Selectable.

QAQDATE
May be used to pass default values to the date selector. The first up-arrow piece
should be one of the valid date range selections, (e.g., Monthly, Quarterly). The
date range may be pre-answered by preceding the range with a <'> ($CHAR(39)),
(e.g., 'Yearly). These may also be abbreviated to M, Q, etc. The next up-arrow piece
may contain a default date for the specified date range. The User Selectable date
range may be passed two default dates, one for the beginning and one for the
ending date (third up-arrow piece). All defaults should be in their external format.
An example is shown below.

```
S QAQDATE="Monthly^March 1992" or
S QAQDATE="'M^March 1992" to force Monthly selection.
S QAQDATE="U^1/1/92^12/31/92" User Selectable with defaults.
```

Returned Variables

QAQQUIT
Is returned as 1 if the user selected nothing, up-arrowed out, or timed out;
otherwise, it is returned as 0.

QAQNBEG
The beginning date in VA FileMan format.

QAQNEND
The ending date in VA FileMan format.

QAQENGD
The external form of today's date, (e.g., JAN 7,1992).

QAQ1HED
Text of the date range chosen, (e.g., MONTH OF JANUARY 1992).

QAQ2HED
An executable variable that writes today's date: `W !?65,QAQENGD`.

QAQTART
The tab position to center QAQ1HED on an 80 column page,
(e.g., `W !?QAQTART,QAQ1HED`).

QAQRANG
Text of the date range chosen, (e.g., Range selected: JAN 1,1992 to JAN 31,1992).

K^QAQDATE
This entry point is used to clean up (KILL) the variables returned by a call to
^QAQDATE. There are no required, optional, or returned variables.

5. Group Selection

^QAQSELCT
This entry point is used to interactively select a group of records from a file. The
user may type ALL at any selection prompt to select all entries in the file that meet
the screens (QAQDIC("S") and ^DD(File#,0,"SCR")). Entries may also be deselected
by typing a minus sign (-) and the entry. See the VA FileMan Programmer's
Manual for a complete description of the VA FileMan variables described below.

Required Variables

QAQDIC
The file number or global root (DIC) of the file that records will be selected from.

QAQDIC(0)
The string used to control the look-up (DIC(0)).

QAQUTIL
The node data will be stored under in the UTILITY global, (i.e., ^UTILITY($J,QAQUTIL,).

Optional Variables

QAQDIC("A")
The prompt (DIC("A")) that will be issued to the user.

QAQDIC("B")
The default value (DIC("B")) that will be displayed on the first selection prompt,
(e.g., ALL).

QAQDIC("S")
MUMPS code that sets $T to limit the user to those records that are selectable
(DIC("S")).

QAQDIC("W")
MUMPS code that will be executed to display additional data related to the user's
entries (DIC("W")).

QAQQUIT
Is returned as 1 if the user selected nothing, up-arrowed out, or timed out, otherwise, it is returned as 0.

^UTILITY($J,QAQUTIL,External_.01_Field_Data,Internal_Entry_Number)=""
The sorted list of the user's selections.

6. Audit Trail

^QAQAUDIT
This entry point is used to generate an audit trail for all actions performed on the records of a file. The file being audited must have a pointer to the QA AUDIT file (#740.5). If the second up-arrow piece of QAUDIT("FILE") is set to this field number, QAQAUDIT will automatically stuff the pointer value to the record's audit trail. If the field number is not passed, it is the programmer's responsibility to stuff the value of QAUDITD0 into this field.

Required Variables

QAUDIT("FILE")
The file number of the file whose entries are being audited. The field number of the pointer to the QA AUDIT file (#740.5) may also be included in the second up-arrow piece, (e.g., 741^27).

QAUDIT("DA")
The internal entry number of the record being audited.

Optional Variables

QAUDIT("ACTION")
A set of codes that describes the action that was taken.

o	Open a record
e	Edit a record
c	Close a record
d	Mark record as deleted

QAUDIT("COMMENT")
A free text comment field, maximum of 220 characters.

QAUDIT("DUZ")
The DUZ of the person who performed the action. If QAUDIT("DUZ") is not
defined, then the variable DUZ will be used.

QAUDIT("DT")
The date and time (preferable down to the second) that the action was performed.
If QAUDIT("DT") is not defined, the VA FileMan format of $H will be used.

<p align="center">*Returned Variables*</p>

QAUDITD0
The internal entry number of the audit record in the QA AUDIT file (#740.5). This
variable will be returned only if the second up-arrow piece of QAUDIT("FILE") is
null.

^QAQADLAU
This entry point is used to delete an audit trail for a specified record.

<p align="center">*Required Variables*</p>

QAUDIT("FILE")
The file number of the file whose entries are being audited.

QAUDIT("DA")
The internal entry number of the record whose audit trail is to be deleted.

7. Ad Hoc Report Generator

^QAQAHOCZ
This entry point is used to compile an Ad Hoc Report Generator interface routine.
The QAQAHOCZ routine is interactive. There are no required, optional, or
returned variables. An example of the running of this routine is shown below.

    DO ^QAQAHOCZ

You will first be prompted for a MUMPS routine name that will be used as the Ad Hoc interface routine.

```
Ad Hoc Report Generator Interface Routine: ?

    Enter the name of a MUMPS routine that will be used
    as the interface to the Ad Hoc Report Generator.
    The routine name must start with an uppercase letter
    and may continue with numbers and uppercase letters.
    The routine name must be from 2 to 8 characters in length.

Ad Hoc Report Generator Interface Routine: ROUTINE
```

If the routine name chosen is a preexisting routine, you will be prompted whether or not to replace that routine.

Next you will be prompted for the file that Ad Hoc will pull data from for sorting and printing.

```
Select the FILE to be used by the Ad Hoc Report Generator
Select FILE: 741    QA OCCURRENCE SCREEN
```

You will then be prompted for the fields that Ad Hoc will pull data from for sorting and printing.

```
Select the FIELDS to be used by the Ad Hoc Report Generator

Choose a field for menu item number 1, <RETURN> to end, ^ to exit .
Select FIELD: .01    QA PATIENT
```

After selecting a field, you may change the text that will appear on the Ad Hoc sort/print menus. Next you should decide whether to allow sorting by this field. (If the field chosen is word processing, you will not be asked this question.) The default is NO for free text, MUMPS, and variable pointer type fields. For all other types and for .01 fields the default is YES.

```
Menu text the user should see: QA PATIENT// Patient
Want to allow sorting by this field? YES// Y  (YES)
```

When you have finished selecting all the fields you want, press RETURN at the "Select FIELD:" prompt to continue. The next question asks if you wish to include the code that will notify the user if no data was found for their report. If you answer no and there is no data for the user's report, nothing will be printed.

```
Automatically include the "No data found..." message? YES// Y  (YES)
```

Next you will be prompted for the header text you wish to display at the top of the sort/print menus.

```
Menu screen header: ?

    Enter the text you want displayed at the top of the sort
    and print menu screens.  The header will be 'Text' followed
    by 'Ad Hoc Report Generator'.  The header text is optional
    and may be null.  To suppress the header altogether enter '@'.
    The header text must be from 0 to 45 characters in length.

Menu screen header: Header Text
```

The Ad Hoc interface routine will then be built and the following message will appear.

```
Building the Ad Hoc Report Generator interface routine(s)...

ROUTINE

Enter 'DO ^ROUTINE' to run the Ad Hoc Report Generator.
```

See the QM Integration Module User Manual for detailed instructions on how to use the Ad Hoc Report Generator.

^QAQAHOC0
This is the entry point called by the Ad Hoc Report Generator interface routine. There are no returned variables.

Required Variables

QAQDIC
The file number of the file that data will be pulled from.

QAQMRTN
The entry point in the Ad Hoc interface routine used to set up the QAQMENU() array. Format: TAG^ROUTINE.

QAQMENU(1...n)
The menu array that contains all the sort/print field choices. The subscripts (1...n) must be sequential and must begin at one. See the full description below.

QAQMENU(1...n) = Sort (Y/N) ^ Menu Text ^ ~BY/FLDS Field Spec ^ DIR(0)

QAQMENU(1...n)
Array Pieces

Sort (Y/N)
1 - Allow sorting on this field, 0 - Don't allow sorting on this field.

Menu Text
The text that will appear on the Ad Hoc sort/print menus, maximum of 30 characters.

~BY/FLDS Field Spec
Any valid EN1^DIP BY or FLDS string. The "~" is replaced by the sort/print prefixes entered by the user or null. Any ;"TEXT" appended to the BY/FLDS string should be in the last ";" piece of the string.

DIR(0)
The DIR(0) string used when the user is prompted for a from/to range on the sort. DIR(0) should have a third "^" piece (input transform) that always returns the external form of the data or -1 in the variable Y.

Optional Variables

QAQMHDR
The text you want displayed at the top of the sort and print menu screens. The header will be "Text" followed by "Ad Hoc Report Generator". The header text is optional and may be null. To suppress the header altogether, enter "@". The header text must be from 0 to 45 characters in length.

QAQORTN
The entry point in the Ad Hoc interface routine used to set up other VA FileMan EN1^DIP variables, (e.g., DCOPIES, DHD, DHIT, DIOBEG, DIOEND, DIS(), IOP, PG). See the VA FileMan Programmer's Manual for a complete description of these variables. Format: TAG^ROUTINE

Files

File List

FILE NUMBER	FILE NAME	GLOBAL
740	QUALITY ASSURANCE SITE PARAMETERS	^QA(740,
740.1	AD HOC MACRO	^QA(740.1,
740.5	QA AUDIT	^QA(740.5,

The following are the steps you may take to obtain information concerning the files and templates contained in the QM Integration Module package.

File Flow (Relationships between files)
1. VA FileMan Menu
2. Data Dictionary Utilities Menu
3. List File Attributes Option
4. Enter File # or range of File #s
5. Select Listing Format: Standard
6. You will see what files point to the selected file. To see what files the selected file points to, look for fields that say "POINTER TO".

Templates
1. VA FileMan Menu
2. Print File Entries Option
3. Output from what File: Print Template
                                       Sort Template
                                       Input Template
                                       List Template
4. Sort by: Name
5. Start with name: QAQ to QAQZ
6. Within name, sort by: <RET>
7. First print field: Name

Exported Options

The following are the steps you may take to obtain information about menus, exported protocols, exported options, exported remote procedures, and exported HL7 applications concerning the QM Integration Module package.

Menu Diagrams
1. Programmers Options
2. Menu Management Menu
3. Display Menus and Options Menu
4. Diagram Menus
5. Select User or Option Name: QAQ Manager Menu

Exported Options
1. VA FileMan Menu
2. Print File Entries Option
3. Output from what File: OPTION
4. Sort by: Name
5. Start with name: QAQ to QAQZ
6. Within name, sort by: <RET>
7. First print field: Name

Archiving and Purging

Archiving
There is currently no provision for archiving records.

Purging
Although VA FileMan can be used to delete records in any of the QM Integration Module files, they are set up with "@" access at the delete level to prevent users from doing this. The QM Integration Module contains the site parameters, the audit file, and the ad hoc macros which are used by all the QM packages. For this reason it is strongly recommended the IRM staff not delete data from these files as it may have an adverse effect on other QM packages.

External/Internal Relations

External Relations

FILE #	FILE NAME	USAGE
1	File	Used by the AD HOC MACRO file (#740.1) to determine which file a macro is associated with. Used by the QA AUDIT file (#740.5) to determine which file an audit trail is associated with.
3.8	Mail Group	Used by the QUALITY ASSURANCE SITE PARAMETERS file (#740) to determine the name of the site at which the QM packages are installed.
4	Institution	Used by the QUALITY ASSURANCE SITE PARAMETERS file (#740) to determine at which site the QM packages are installed.
5	State	Used by the QUALITY ASSURANCE SITE PARAMETERS file (#740) to determine what state the site is located in.
200	New Person	Used by the QA AUDIT file (#740.5) to track who performed what actions on what data.

Internal Relations
The package is designed to allow for tailoring of menus for particular users. This should be determined by the QM ADPAC at each site, based on how the components of the QM task are assigned. The QM Manager Menu options are intended for use by the QM ADPAC.

Package-wide Variables

No variables are used package wide.

How to Generate On-line Documentation

This section describes some of the various methods by which users may secure QM Integration Module technical documentation. On-line technical documentation pertaining to the QMIM software, in addition to that which is located in the help prompts and on the help screens which are found throughout the QMIM package, may be generated through utilization of several KERNEL options. These include but are not limited to: XINDEX, Menu Management Inquire Option File, Print Option File, and FileMan List File Attributes.

Entering question marks at the "Select ... Option:" prompt may also provide users with valuable technical information. For example, a single question mark (?) lists all options which can be accessed from the current option. Entering two question marks (??) lists all options accessible from the current one, showing the formal name and lock for each. Three question marks (???) displays a brief description for each option in a menu while an option name preceded by a question mark (?OPTION) shows extended help, if available, for that option.

For a more exhaustive option listing and further information about other utilities which supply on-line technical information, please consult the **V**_IST_**A** Kernel Reference Manual.

XIndex
This option analyzes the structure of a routine(s) to determine in part if the routine(s) adheres to **V**_IST_**A** Programming Standards. The XINDEX output may include the following components: compiled list of errors and warnings, routine listing, local variables, global variables, naked globals, label references, and external references. By running XINDEX for a specified set of routines, the user is afforded the opportunity to discover any deviations from **V**_IST_**A** Programming Standards which exist in the selected routine(s) and to see how routines interact with one another, that is, which routines call or are called by other routines.

To run XINDEX for the QMIM package, specify the following namespace at the "routine(s) ?>" prompt: QAQ*.

QMIM initialization routines which reside in the UCI in which XINDEX is being run, compiled template routines, and local routines found within the QMIM namespace should be omitted at the "routine(s) ?>" prompt. To omit routines from selection, preface the namespace with a minus sign (-).

Inquire to Option File

This Menu Manager option provides the following information about a specified option(s): option name, menu text, option description, type of option, and lock (if any). In addition, all items on the menu are listed for each menu option.

To secure information about QMIM options, the user must specify the name or namespace of the option(s) desired. QAQ is the namespace associated with the QMIM package.

Print Options File

This utility generates a listing of options from the OPTION file. The user may choose to print all of the entries in this file or may elect to specify a single option or range of options. To obtain a list of QMIM options, the following option namespace should be specified: QAQ.

List File Attributes

This FileMan option allows the user to generate documentation pertaining to files and file structure. Utilization of this option via the "Standard" format will yield the following data dictionary information for a specified file(s): file name and description, identifiers, cross-references, files pointed to by the file specified, files which point to the file specified, input templates, print templates, and sort templates. In addition, the following applicable data is supplied for each field in the file: field name, number, title, global location, description, help prompt, cross-reference(s), input transform, date last edited, and notes.

Using the "Global Map" format of this option generates an output which lists all cross-references for the file selected, global location of each field in the file, input templates, print templates, and sort templates.

Security

Security Keys

The QM Integration Module does not use any special locks or keys.

FileMan Access Codes

Below is a list of recommended VA FileMan access codes associated with each file contained in the QMIM package. This list may be used to assist in assigning users appropriate VA FileMan access codes.

FILE NUMBER	FILE NAME	DD ACCESS	RD ACCESS	WR ACCESS	DEL ACCESS	LAYGO ACCESS
740	QUALITY ASSURANCE SITE PARAMETERS	@				
740.1	AD HOC MACRO	@		@	@	
740.5	QA AUDIT	@	@	@	@	@

Glossary

ADPAC	Automated Data Processing Application Coordinator
Count	As opposed to Total, provides a sequential series of numbers (1, 2, 3...) in the sort field.
Delete	As used in the Ad Hoc Report Generator, the [D (delete) macro removes the macro from the inquire list.
Generator	Produces or creates a product. The Ad Hoc mechanism creates reports.
Inquire	As used in the Ad Hoc Report Generator, the [I function allows the user to see the contents of the macros that have already been created.
Load	As used in the Ad Hoc Report Generator, the [L function tells the computer to follow the directions for the macro loaded in order for a report to be generated.
Macro	A simple command that calls to action a series of commands or often used set of tasks.
Modifier	Something that changes or alters the sorting/printing field or value. In the Ad Hoc Report Generator, the modifier alters the way the values in fields are sorted and printed.
Output Macro	A used in the Ad Hoc Report Generator, the [O function provides an output for the user that shows the user the exact sort and/or print fields entered.
QM Integration Module	A set of routines often called QAQ routines that are used by, and support, the QM software.
Save	As used in the Ad Hoc Report Generator, the [S function sets a name to a series of sort or print commands so that the name can be used to bring up the same series of commands whenever it is needed.
Sort field	The values within the field will be searched through and put in a regular order.

Sub-header	A sort field appearing below the header or main sort field and changes each time the sort field changes.
Template	Same as Macro
Total	As opposed to Count, adds/sums up the amounts within a print field.